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⌐1: Comp Biochem Physiol B. 1991;99(2):413-7.   Related Articles, Links

Differential effects of oleic acid, sodium dodecyl sulfate, and protease inhibitors on the endopeptidase activities of the lobster multicatalytic proteinase.

Clark JJ, Ilgen TL, Haire MF, Mykles DL.

Department of Biology, Colorado State University, Fort Collins 80523.

1. Lobster muscles contain a latent multicatalytic proteinase; heating at 60 degrees C for 1-2 min converts the latent form to a heat-activated form with enhanced proteolytic activity. Both forms have three endopeptidase activities, which are classified as the trypsin-like, chymotrypsin-like, and peptidylglutamylpeptide bond hydrolyzing activities. 2. Sulfhydryl reagents (mersalyl acid, N-ethylmaleimide, hemin, iodoacetamide, and p-chloromercurisulfonic acid), benzamidine, and chloromethyl ketones inhibited all three activities of the heat-activated form. Leupeptin and antipain inhibited only the trypsin-like activity, while the chymotrypsin-like activity was the most sensitive to diisopropyl fluorophosphate, phenylmethanesulfonyl fluoride, aprotinin, and soybean trypsin inhibitor. Pepstatin and L-trans-epoxysuccinylpeptides had little effect on the peptidase activities. 3. Sodium dodecyl sulfate and oleic acid preferentially activated the peptidylglutamyl-peptide hydrolyzing activity of the latent form, whereas N-ethylmaleimide stimulated both the trypsin-like and peptidylglutamyl-peptide hydrolases. These results suggest that the lobster enzyme is an atypical serine proteinase.

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